ASROCK

H81TM-ITX

User Manual

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(2) this device must accept any interference received, including interference that may cause undesired operation.

CALIFORNIA, USA ONLY

The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.
"Perchlorate Material-special handling may apply, see www.dtsc.ca.gov/hazardouswaste/perchlorate"

ASRock Website: http://www.asrock.com

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Chapter 1 Introduction

Thank you for purchasing ASRock H81TM-ITX motherboard, a reliable motherboard produced under ASRock's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock's commitment to quality and endurance.

In this manual, Chapter 1 and 2 contains the introduction of the motherboard and step-by-step installation guides. Chapter 3 contains the operation guide of the software and utilities. Chapter 4 contains the configuration guide of the BIOS setup.

Because the motherboard specifications and the BIOS software might be updated, the content of this documentation will be subject to change without notice. In case any modifications of this documentation occur, the updated version will be available on ASRock's website without further notice. If you require technical support related to this motherboard, please visit our website for specific information about the model you are using. You may find the latest VGA cards and CPU support list on ASRock's website as well. ASRock website http://www.asrock.com.

1.1 Package Contents

- ASRock H81TM-ITX Motherboard (Thin Mini-ITX Form Factor)
- ASRock H81TM-ITX Quick Installation Guide
- ASRock H81TM-ITX Support CD
- 2 x Serial ATA (SATA) Data Cables (Optional)
- 1 x SATA 1 to 1 Power Cable (Optional)
- 2 x I/O Panel Shields
- 1 x WiFi Module Screw

1.2 Specifications

Platform	• Thin Mini-ITX Form Factor (Compatible with Mini-ITX) • Solid Capacitor for CPU power
A-Style	• Home Cloud
CPU	• Supports 4th Generation Intel® Core™ i7 / i5 / i3 / Xeon® / Pentium® / Celeron® processors with up to 65W TDP in an LGA1150 package • Supports Intel® Turbo Boost 2.0 Technology
Chipset	• Intel® H81
Memory	• Dual Channel DDR3 Memory Technology • 2 x DDR3 SO-DIMM Slots • Supports DDR3 1600/1333/1066 non-ECC, un-buffered memory • Max. capacity of system memory: 16GB (see CAUTION) • Supports Intel® Extreme Memory Profile (XMP)1.3/1.2
Expansion Slot	• 1 x PCI Express 2.0 x4 Slot • 1 x mini-PCI Express Slot
Graphics	• Intel® HD Graphics Built-in Visuals and the VGA outputs can be supported only with processors which are GPU integrated. • Supports Intel® HD Graphics Built-in Visuals : Intel® Quick Sync Video with AVC, MVC (S3D) and MPEG-2 Full HW Encode1, Intel® InTruTM 3D, Intel® Clear Video HD Technology, Intel® InsiderTM, Intel® HD Graphics 4400/4600 • Pixel Shader 5.0, DirectX 11.1 • Max. shared memory 1792MB • Three graphics output options: HDMI, DVI-I and LVDS • Supports Triple Monitor • Supports HDMI Technology with max. resolution up to 4K × 2K (4096x2304) @ 24Hz • Supports DVI-I with max. resolution up to 1920x1200 @ 60Hz

	• Supports LVDS with max. resolution up to 1920x1200 @ 60Hz • Supports Auto Lip Sync, Deep Color (12bpc), xvYCC and HBR (High Bit Rate Audio) with HDMI Port (Compliant HDMI monitor is required) • Supports HDCP function with HDMI • Supports Full HD 1080p Blu-ray (BD) playback with HDMI
Audio	• 7.1 CH HD Audio with Content Protection (Realtek ALC892 Audio Codec) • Premium Blu-ray audio support
LAN	• Gigabit LAN 10/100/1000 Mb/s • Giga PHY Intel® I217V • Supports Intel® Remote Wake Technology • Supports Wake-On-LAN • Supports Energy Efficient Ethernet 802.3az • Supports PXE
Rear Panel I/O	• 1 x DC Jack • 1 x DVI-I Port • 1 x HDMI Port • 2 x USB 2.0 Ports • 2 x USB 3.0 Ports • 1 x RJ-45 LAN Port with LED (ACT/LINK LED and SPEED LED) • HD Audio Jacks: Front Speaker / Microphone
Storage	• 2 x SATA3 6.0 Gb/s connectors, support NCQ, AHCI and Hot Plug
Connector	• 1 x CIR Header • 1 x COM Port Header • 1 x SPDIF Out Connector • 1 x Backlight Power Jumper • 1 x Panel Power Jumper • 1 x Backlight & Amp Volume Control Header

	• 1 x Power LED Header • 1 x LVDS Connector • 1 x LPC Debug Header • 1 x Home Theater PC Header • 1 x CPU Fan Connector (4-pin) • 1 x Chassis Fan Connector (4-pin) • 1 x Front Panel Audio Connector • 1 x Analog Surround Audio Header • 1 x Digital MIC Header • 1 x 3W Audio AMP Output Wafer Header • 1 x SATA Power Connector • 2 x USB 2.0 Headers (Support 4 USB 2.0 ports)
BIOS Feature	• 32Mb AMI UEFI Legal BIOS with multilingual GUI support • ACPI 1.1 Compliant wake up events • SMBIOS 2.3.1 support • CPU, DRAM Voltage multi-adjustment
Support CD	• Drivers, Utilities, AntiVirus Software (Trial Version), Google Chrome Browser and Toolbar, Start8 (30 days trial), Mesh-Central, Splashtop Streamer
Hardware Monitor	• CPU/Chassis temperature sensing • CPU/Chassis Fan Tachometer • CPU/Chassis Quiet Fan (Auto adjust chassis fan speed by CPU temperature) • CPU/Chassis Fan multi-speed control • Voltage monitoring: +12V, +5V, +3.3V, CPU Vcore
OS	• Microsoft® Windows® 8.1 32-bit / 8.1 64-bit / 8 32-bit / 8 64-bit / 7 32-bit / 7 64-bit
Certifications	• FCC, CE, WHQL • ErP/EuP Ready (ErP/EuP ready power supply is required)

** For detailed product information, please visit our website: http://www.asrock.com*

Due to limitation, the actual memory size may be less than 4GB for the reservation for system usage under Windows® 32-bit operating systems. Windows® 64-bit operating systems do not have such limitations. You can use ASRock XFast RAM to utilize the memory that Windows® cannot use.

1.3 Unique Features

ASRock A-Tuning

A-Tuning is ASRock's multi purpose software suite with a new interface, more new features and improved utilities, including XFast RAM, Dehumidifier, Good Night LED, FAN-Tastic Tuning, OC Tweaker and a whole lot more.

ASRock Instant Flash

ASRock Instant Flash is a BIOS flash utility embedded in Flash ROM. This convenient BIOS update tool allows you to update the system BIOS in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Just save the new BIOS file to your USB storage and launch this tool by pressing <F6> or <F2> during POST to enter the BIOS setup menu to access ASRock Instant Flash. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system.

ASRock APP Charger

Simply by installing the ASRock APP Charger makes your iPhone/iPad/iPod Touch charge up to 40% faster than before on your computer. ASRock APP Charger allows you to quickly charge many Apple devices simultaneously and even supports continuous charging when your PC enters into Standby mode (S1), Suspend to RAM (S3), hibernation mode (S4) or power off (S5).

ASRock XFast LAN

ASRock XFast LAN provides faster internet access, which includes the benefits listed below. LAN Application Prioritization: You can configure your application's priority ideally and add new programs to the list. Lower Latency in Game: After setting online game's priority higher, it can lower the latency in games. Traffic Shaping: You can watch Youtube HD videos and download simultaneously. Real-Time Analysis of Your Data: With the status window, you can easily recognize which data streams you are currently transferring.

ASRock XFast RAM

ASRock XFast RAM is included in A-Tuning. It fully utilizes the memory space that cannot be used under Windows® 32-bit operating systems. ASRock XFast RAM shortens the loading time of previously visited websites, making web surfing faster than ever. And it also boosts the speed of Adobe Photoshop 5 times faster. Another advantage of ASRock XFast RAM is that it reduces the frequency of accessing your SSDs or HDDs in order to extend their lifespan.

ASRock Crashless BIOS

ASRock Crashless BIOS allows users to update their BIOS without fear of failing. If power loss occurs during the BIOS updating process, ASRock Crashless BIOS will automatically finish the BIOS update procedure after regaining power. Please note that BIOS files need to be placed in the root directory of your USB disk. Only USB 2.0 ports support this feature.

ASRock OMG (Online Management Guard)

Administrators are able to establish an internet curfew or restrict internet access at specified times via OMG. You may schedule the starting and ending hours of internet access granted to other users. In order to prevent users from bypassing OMG, guest accounts without permission to modify the system time are required.

ASRock Internet Flash

ASRock Internet Flash downloads and updates the latest UEFI firmware version from our servers for you without entering Windows® OS. Please setup network configuration before using Internet Flash.

ASRock UEFI Tech Service

Contact ASRock Tech Service by sending a support request from the UEFI setup utility if you are having trouble with your PC.

ASRock Dehumidifier Function

Users may prevent motherboard damages due to dampness by enabling "Dehumidifier Function". When enabling Dehumidifier Function, the computer will power on automatically to dehumidify the system after entering S4/S5 state.

ASRock Easy Driver Installer

For users that don't have an optical disk drive to install the drivers from our support CD, Easy Driver Installer is a handy tool in the UEFI that installs the LAN driver to your system via an USB storage device, then downloads and installs the other required drivers automatically.

ASRock Interactive UEFI

ASRock Interactive UEFI is a blend of system configuration tools, cool sound effects and stunning visuals. The unprecedented UEFI provides a more attractive interface and more amusment.

ASRock Fast Boot

With ASRock's exclusive Fast Boot technology, it takes less than 1.5 seconds to logon to Windows 8 from a cold boot. No more waiting! The speedy boot will completely change your user experience and behavior.

ASRock Restart to UEFI

Windows® 8 brings the ultimate boot up experience. The lightning boot up speed makes it hard to access the UEFI setup. ASRock Restart to UEFI allows users to enter the UEFI automatically when turning on the PC. By enabling this function, the PC will enter the UEFI directly after you restart.

ASRock Good Night LED

ASRock Good Night LED technology offers you a better sleeping environment by extinguishing the unessential LEDs. By enabling Good Night LED in the BIOS, the Power/HDD LEDs will be switched off when the system is powered on. Good Night LED will automatically switch off the Power and Keyboard LEDs when the system enters into Standby/Hibernation mode as well.

ASRock USB Key

In a world where time is money, why waste precious time everyday typing usernames to log in to Windows? Why should we even bother memorizing those foot long passwords? Just plug in the USB Key and let your computer log in to windows automatically!

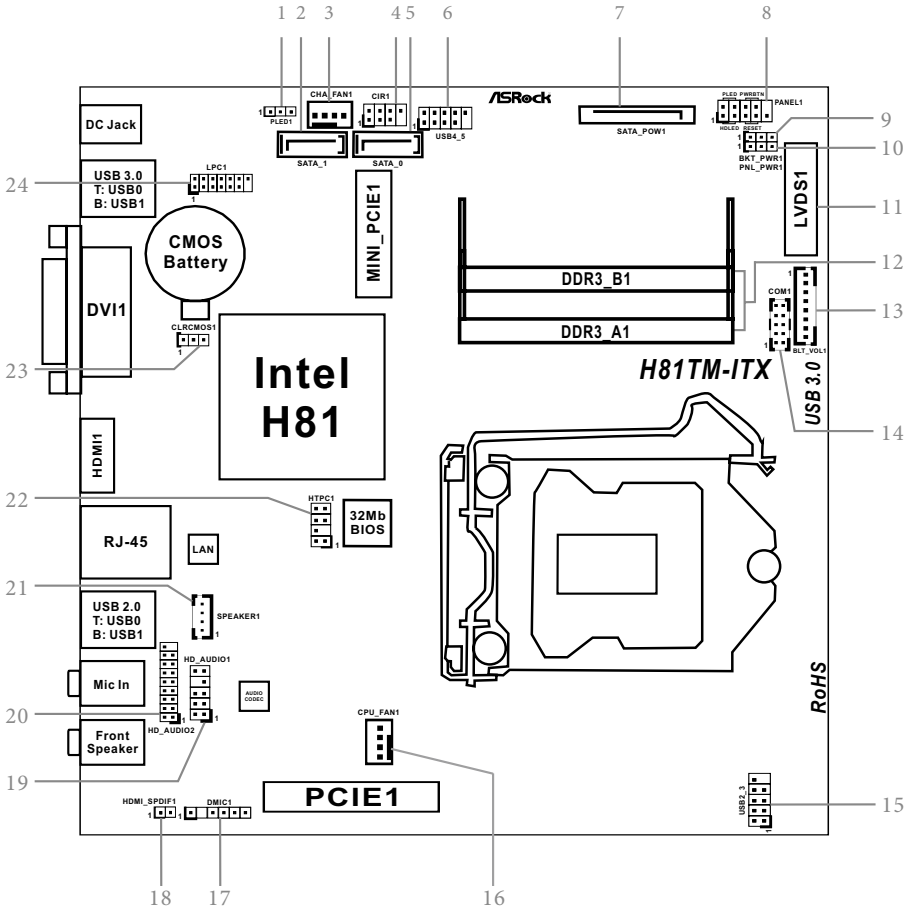
ASRock Home Cloud

This motherboard supports remote wake with the onboard Intel LAN, so you can connect with your PC from anywhere in the world. You will be able to power your PC on or turn it off, monitor and take control of it remotely with another smartphone, tablet or computer.

ASRock FAN-Tastic Tuning

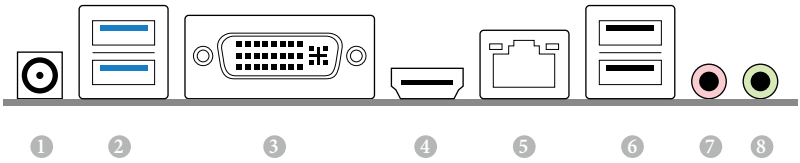
ASRock FAN-Tastic Tuning is included in A-Tuning. Configure up to five different fan speeds using the graph. The fans will automatically shift to the next speed level when the assigned temperature is met.

1.4 Motherboard Layout



No.	Description
1	Power LED Header (PLED1)
2	SATA3 Connector (SATA_1)
3	Chassis Fan Connector (CHA_FAN1)
4	Consumer Infrared Module Header (CIR1)
5	SATA3 Connector (SATA_0)
6	USB 2.0 Header (USB4_5)
7	SATA Power Connector (SATA_POW1)
8	System Panel Header (PANEL1)
9	Backlight Power Jumper (BKT_PWR1)
10	Panel Power Jumper (PNL_PWR1)
11	LVDS Connector (LVDS1)
12	2 x 204-pin DDR3 SO-DIMM Slots (DDR3_A1, DDR3_B1)
13	Backlight & Amp Volume Control Header (BLT_VOL1)
14	COM Port Header (COM1)
15	USB 2.0 Header (USB2_3)
16	CPU Fan Connector (CPU_FAN1)
17	Digital MIC Header (DMIC1)
18	SPDIF Out Connector (HDMI_SPDIF1)
19	Front Panel Audio Header (HD_AUDIO1)
20	Analog Surround Audio Header (HD_AUDIO2)
21	3W Audio AMP Output Wafer Header (SPEAKER1)
22	Home Theater PC Header (HTPC1)
23	Clear CMOS Jumper (CLRCMOS1)
24	LPC Debug Header (LPC1)

1.5 I/O Panel

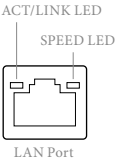


No.	Description	No.	Description
1	DC Jack*	5	LAN RJ-45 Port**
2	USB 3.0 Ports (USB3_01)	6	USB 2.0 Ports (USB01)
3	DVI-I Port (DVI1)	7	Microphone (Pink)
4	HDMI Port (HDMI1)	8	Front Speaker (Lime)

** Please use a 19V power adapter for the DC jack. This jack accepts dual barrel plugs with an inner diameter of 5.1 mm and an outer diameter of 7.4 mm, where the inner contact is +19 (±10%) VDC and the shell is GND.*

DELTA	*DELTA-ADP-150TB-150W/19V*
HP	*HP-TBC-BA52-150W/19V*
FSP	*FSP-FSP150-ABAN1-150W/19V*

*** There are two LEDs on each LAN port. Please refer to the table below for the LAN port LED indications.*



Activity / Link LED		Speed LED	
Status	Description	Status	Description
Off	No Link	Off	10Mbps connection
Blinking	Data Activity	Orange	100Mbps connection
On	Link	Green	1Gbps connection

English

Chapter 2 Installation

This is a Thin Mini-ITX form factor motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

Pre-installation Precautions

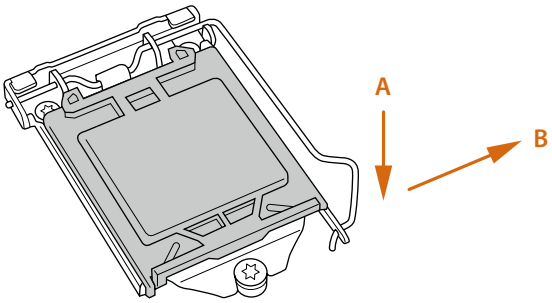
Take note of the following precautions before you install motherboard components or change any motherboard settings.

- Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause physical injuries to you and damages to motherboard components.
- In order to avoid damage from static electricity to the motherboard's components, NEVER place your motherboard directly on a carpet. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle the components.
- Hold components by the edges and do not touch the ICs.
- Whenever you uninstall any components, place them on a grounded anti-static pad or in the bag that comes with the components.
- When placing screws to secure the motherboard to the chassis, please do not over-tighten the screws! Doing so may damage the motherboard.

2.1 Installing the CPU

1. *Before you insert the 1150-Pin CPU into the socket, please check if the **PnP cap** is on the socket, if the CPU surface is unclean, or if there are any **bent pins** in the socket. Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged.*
2. *Unplug all power cables before installing the CPU.*

1



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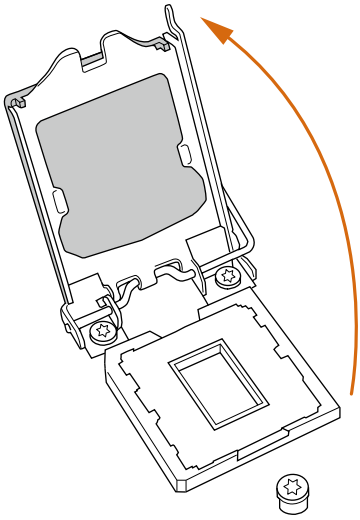

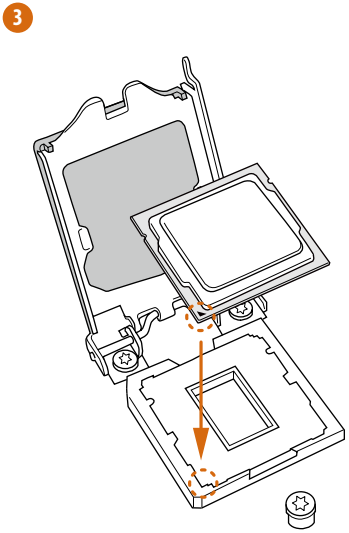
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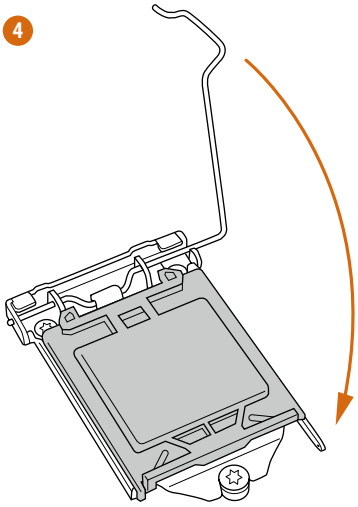
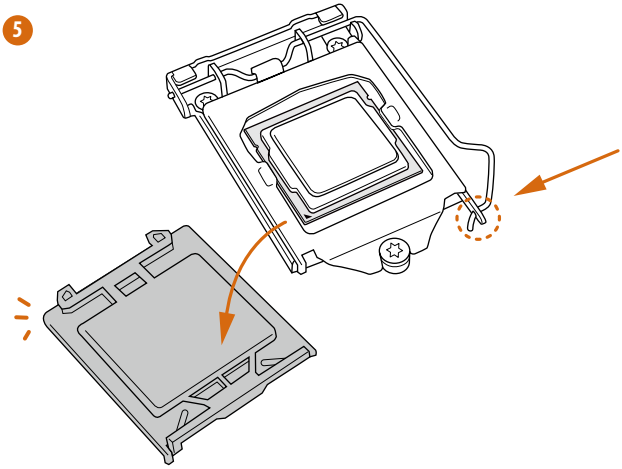
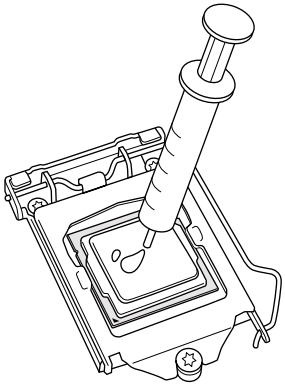
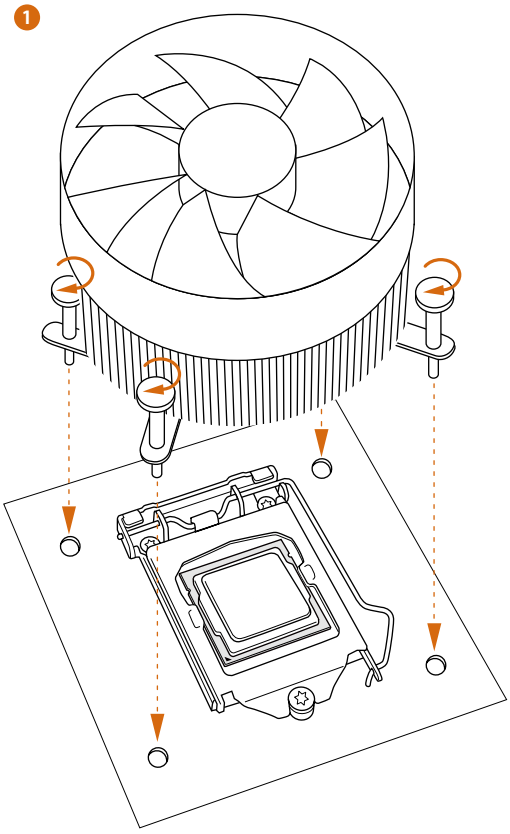

4

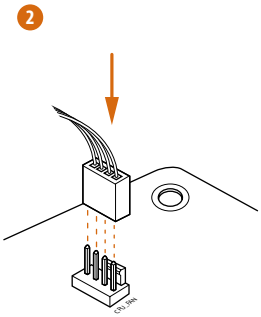

5

Please save and replace the cover if the processor is removed. The cover must be placed if you wish to return the motherboard for after service.

2.2 Installing the CPU Fan and Heatsink







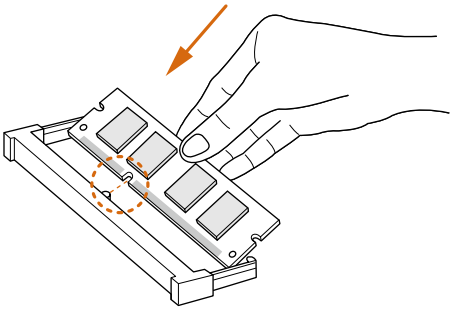
2.3 Installing Memory Modules (SO-DIMM)

This motherboard provides two 204-pin DDR3 (Double Data Rate 3) SO-DIMM slots.

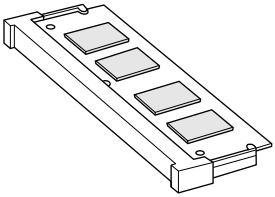
It is not allowed to install a DDR or DDR2 memory module into a DDR3 slot; otherwise, this motherboard and SO-DIMM may be damaged.

The SO-DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the SO-DIMM if you force the SO-DIMM into the slot at incorrect orientation.

1



2



2.4 Expansion Slots (PCI Express Slots)

There is 1 PCI Express slot and 1 mini PCI Express slot on this motherboard.

Before installing an expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation.

PCIe slot:

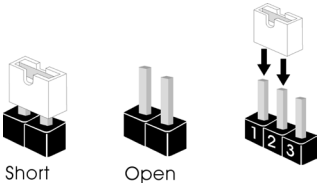
PCIE1 (PCIe 2.0 x4 slot) is used for PCI Express x4 lane width cards.

mini-PCIe slot:

MINI_PCIE1 (mini-PCIe slot) is used for WiFi module.

2.5 Jumpers Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on the pins, the jumper is "Short". If no jumper cap is placed on the pins, the jumper is "Open". The illustration shows a 3-pin jumper whose pin1 and pin2 are "Short" when a jumper cap is placed on these 2 pins.



Clear CMOS Jumper (CLRCMOS1) (see p.9, No. 23)		

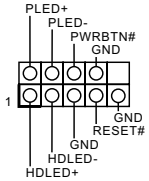
CLRCMOS1 allows you to clear the data in CMOS. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short pin2 and pin3 on CLRCMOS1 for 5 seconds. However, please do not clear the CMOS right after you update the BIOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS action. Please be noted that the password, date, time, and user default profile will be cleared only if the CMOS battery is removed.

Backlight Power Jumper (3-pin BKT_PWR1) (see p.9, No. 9)		1-2 : +19V 2-3 : +12V
Panel Power Jumper (3-pin PNL_PWR1) (see p.9, No. 10)		1-2 : +3V 2-3 : +5V

2.6 Onboard Headers and Connectors

Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage to the motherboard.

System Panel Header
(9-pin PANEL1)
(see p.9, No. 8)



Connect the power switch, reset switch and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.

PWRBTN (Power Switch):
Connect to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch.

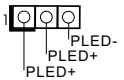
RESET (Reset Switch):
Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.

PLED (System Power LED):
Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the system is in S1/S3 sleep state. The LED is off when the system is in S4 sleep state or powered off (S5).

HDLED (Hard Drive Activity LED):
Connect to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.

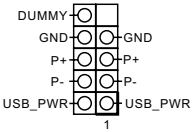
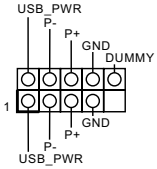
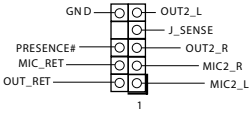
The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

Power LED Header
(3-pin PLED1)
(see p.9, No. 1)



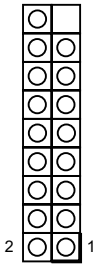
Please connect the chassis power LED to this header to indicate the system's power status.

English

Serial ATA3 Connectors (SATA_0: see p.9, No. 5) (SATA_1: see p.9, No. 2)		These two SATA3 connectors support SATA data cables for internal storage devices with up to 6.0 Gb/s data transfer rate.
SATA Power Connector (SATA_POW1) (see p.9, No. 7)		Please connect a SATA power cable.
USB 2.0 Headers (9-pin USB2_3) (see p.9, No. 15)		Besides two USB 2.0 ports on the I/O panel, there are two headers on this motherboard. Each USB 2.0 header can support two ports.
(9-pin USB4_5) (see p.9, No. 6)		
Front Panel Audio Header (9-pin HD_AUDIO1) (see p.9, No. 19)		This header is for connecting audio devices to the front audio panel.

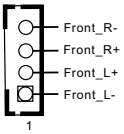
1. *High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instructions in our manual and chassis manual to install your system.*
2. *If you use an AC'97 audio panel, please install it to the front panel audio header by the steps below:*
   A. Connect Mic_IN (MIC) to MIC2_L.
   B. Connect Audio_R (RIN) to OUT2_R and Audio_L (LIN) to OUT2_L.
   C. Connect Ground (GND) to Ground (GND).
   D. MIC_RET and OUT_RET are for the HD audio panel only. You don't need to connect them for the AC'97 audio panel.
   E. To activate the front mic, go to the "FrontMic" Tab in the Realtek Control panel and adjust "Recording Volume".

Analog Surround Audio Header (17-pin HD_AUDIO2) (see p.9, No. 20)



PIN	Signal Name	PIN	Signal Name
18	SENSE	**17**	KEY
16	LFE	**15**	A_GND
14	A_GND	**13**	Center
12	Surr_Rear_R	**11**	A_GND
10	A_GND	**9**	Surr_Rear_L
8	Surr_Side_R	**7**	A_GND
6	A_GND	**5**	Surr_Side_L
4	Front_R	**3**	A_GND
2	A_GND	**1**	Front_L

3W Audio AMP Output Wafer Header (4-pin SPEAKER1) (see p.9, No. 21)

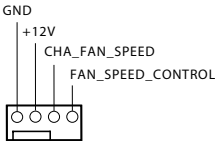


Please connect the chassis speaker to this header.

SPDIF Out Connector (2-pin SPDIF_OUT1) (see p.9, No. 18)

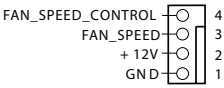
Please connect the SPDIF Out connector of a HDMI VGA card to this header with a cable.

Chassis Fan Connector (4-pin CHA_FAN1) (see p.9, No. 3)



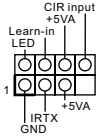
Please connect fan cable to the fan connector and match the black wire to the ground pin.

CPU Fan Connector (4-pin CPU_FAN1) (see p.9, No. 16)



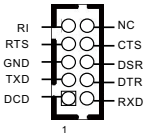
This motherboard provides a 4-Pin CPU fan (Quiet Fan) connector. If you plan to connect a 3-Pin CPU fan, please connect it to Pin 1-3.

Consumer Infrared Module Header (7-pin CIR1) (see p.9, No. 4)



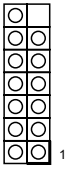
This header can be used to connect the remote controller receiver.

Serial Port Header (9-pin COM1) (see p.9, No. 14)



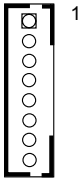
This COM1 header supports a serial port module.

LPC Debug Header (13-pin LPC1) (see p.9, No. 24)



PIN	Signal Name	PIN	Signal Name
14	+3V	**13**	No pin
12	+3V	**11**	+3V
10	GND	**9**	GND
8	LAD3	**7**	LAD2
6	LAD1	**5**	LAD0
4	LFRAME#	**3**	RESET#
2	GND	**1**	CLK

Backlight & Amp Volume Control Header (8-pin BLT_VOL1) (see p.9, No. 13)

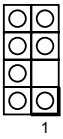


1: BKLT_EN
2: BKLT_PWM
3: BKLT_PWR
4: BKLT_PWR
5: GND
6: GND
7: Brightness_Up
8: Brightness_Down

Digital MIC Header (5-pin DMIC1) (see p.9, No. 17)

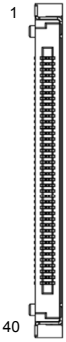
1: +5V
2: No pin
2: SPDIF_OUT/DMIC_ CLK
3: GND
4: DMIC_DATA
5: +3.3V

Home Theater PC Header (7-pin HTPC1) (see p.9, No. 22)



PIN	Signal Name	PIN	Signal Name
8	HDMI CEC	7	#Power_Button
6	SMB_DATA	5	3.3V Standby
4	SMB_CLK	3	No pin
2	GND	1	Recording LED

LVDS Panel Connector (40-pin LVDS1) (see p.9, No. 11)



PIN	Signal Name	PIN	Signal Name
1	ODD_Lane3_P	21	NC
2	ODD_Lane3_N	22	EDID_3.3V
3	ODD_Lane2_P	23	LCD_GND
4	ODD_Lane2_N	24	LCD_GND
5	ODD_Lane1_P	25	LCD_GND
6	ODD_Lane1_N	26	ODD_CLK_P
7	ODD_Lane0_P	27	ODD_CLK_N
8	ODD_Lane0_N	28	BKLT_GND
9	EVEN_Lane3_P	29	BKLT_GND
10	EVEN_Lane3_N	30	BKLT_GND
11	EVEN_Lane2_P	31	EDID_CLK
12	EVEN_Lane2_N	32	BKLT_ENABLE
13	EVEN_Lane1_P	33	BKLT_PWM_DIM
14	EVEN_Lane1_N	34	EVEN_CLK_P
15	EVEN_Lane0_P	35	EVEN_CLK_N
16	EVEN_Lane0_N	36	BKLT_PWR (12V/19V)
17	EDID_GND	37	BKLT_PWR (12V/19V)
18	LCD_VCC (3.3V/5V/12V)	38	BKLT_PWR (12V/19V)
19	LCD_VCC (3.3V/5V/12V)	39	NC
20	LCD_VCC (3.3V/5V/12V)	40	EDID_DATA

Chapter 3 Software and Utilities Operation

3.1 Installing Drivers

The Support CD that comes with the motherboard contains necessary drivers and useful utilities that enhance the motherboard's features.

Running The Support CD

To begin using the support CD, insert the CD into your CD-ROM drive. The CD automatically displays the Main Menu if "AUTORUN" is enabled in your computer. If the Main Menu does not appear automatically, locate and double click on the file "ASRSETUP.EXE" in the Support CD to display the menu.

Drivers Menu

The drivers compatible to your system will be auto-detected and listed on the support CD driver page. Please click **Install All** or follow the order from top to bottom to install those required drivers. Therefore, the drivers you install can work properly.

Utilities Menu

The Utilities Menu shows the application software that the motherboard supports. Click on a specific item then follow the installation wizard to install it.

To improve Windows 7 compatibility, please download and install the following hot fix provided by Microsoft.
"KB2720599": http://support.microsoft.com/kb/2720599/en-us

3.2 A-Tuning

A-Tuning is ASRock's multi purpose software suite with a new interface, more new features and improved utilities, including XFast RAM, Dehumidifier, Good Night LED, FAN-Tastic Tuning, OC Tweaker and a whole lot more.

3.2.1 Installing A-Tuning

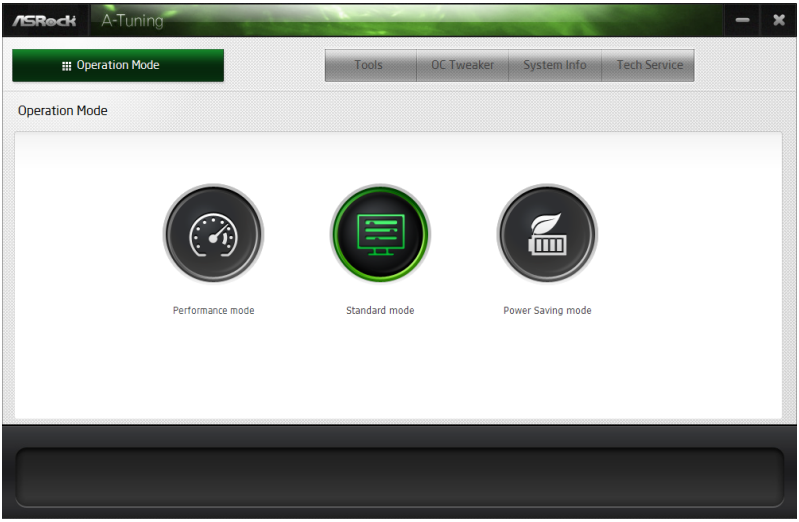
When you install the all-in-one driver to your system from ASRock's support CD, A-Tuning will be auto-installed as well. After the installation, you will find the icon "A-Tuning" on your desktop. Double-click the "A-Tuning" icon, A-Tuning main menu will pop up.

3.2.2 Using A-Tuning

There are five sections in A-Tuning main menu: Operation Mode, Tools, OC Tweaker, System Info and Tech Service.

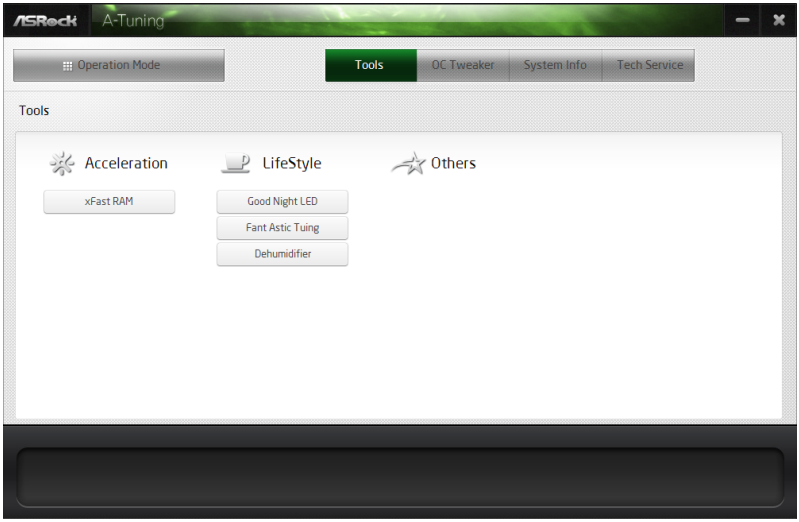
Operation Mode

Choose an operation mode for your computer.



Tools

Various tools and utilities.



XFast RAM

Boost the system's performance and extend the HDD's or SDD's lifespan! Create a hidden partition, then assign which files should be stored in the RAM drive.

Good Night LED

Switch off the Power/HDD/LAN LEDs when the system is on, and automatically switch off the Power and Keyboard LEDs when the system enters into Standby/ Hibernation mode.

FAN-Tastic Tuning

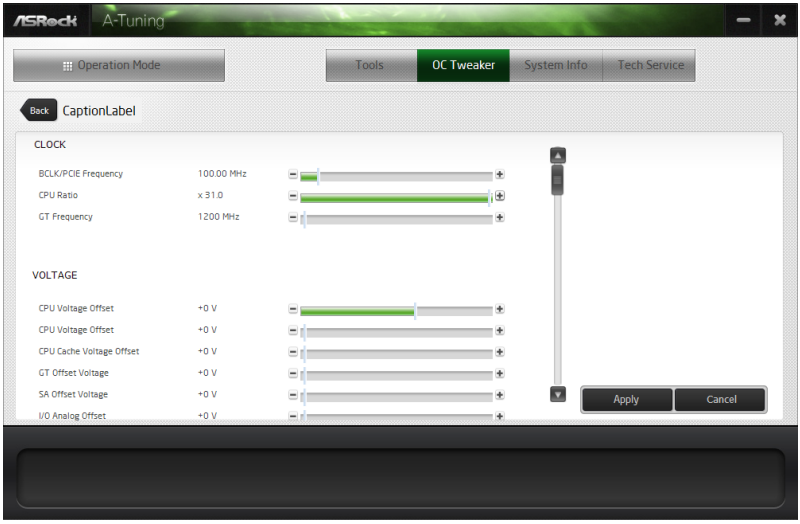
Configure up to five different fan speeds using the graph. The fans will automatically shift to the next speed level when the assigned temperature is met.

Dehumidifier

Prevent motherboard damages due to dampness. Enable this function and configure the period of time until the computer powers on, and the duration of the dehumidifying process.

OC Tweaker

Configurations for overclocking the system.

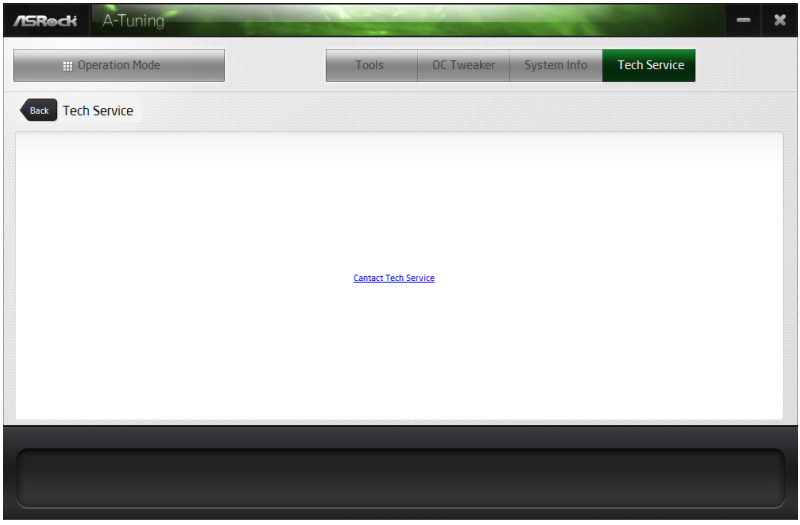


System Info

View information about the system.

Tech Service

Contact Tech Service.



3.3 Intel® Smart Connect Technology

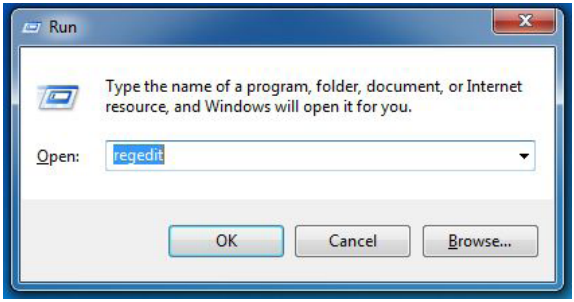
Intel® Smart Connect Technology is a feature that periodically wakes your computer from Windows® sleep state to refresh email or social networking applications. It saves your waiting time and keeps the content always up-to-date.

3.3.1 System Requirements

- Confirm whether your motherboard supports this feature.
- Operating system: Microsoft Windows 8/7 (32- or 64-bit edition)
- Set the SATA mode to AHCI. If Windows 8/7 is already installed under IDE mode, directly changing the SATA mode to AHCI may cause Windows 8/7 to crash while booting. If your system is not in AHCI mode, please follow the instructions below.

There are certain risks. Please backup any important data before operating to avoid loss.

1. Press **Win + R** simultaneously in Windows 8/7, type "Regedit" into the word box then click **OK**.



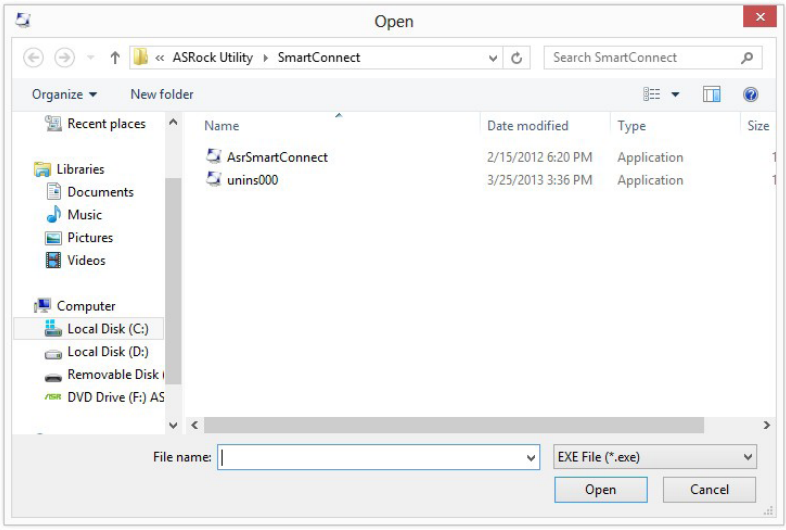
2. Enter into **HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\msahci** in Windows Registry Editor. Double click on the value **Start** and change the value from **3** into **0**. Click on **OK**.

3.3.2 Setup Guide

Installing ASRock Smart Connect Utility

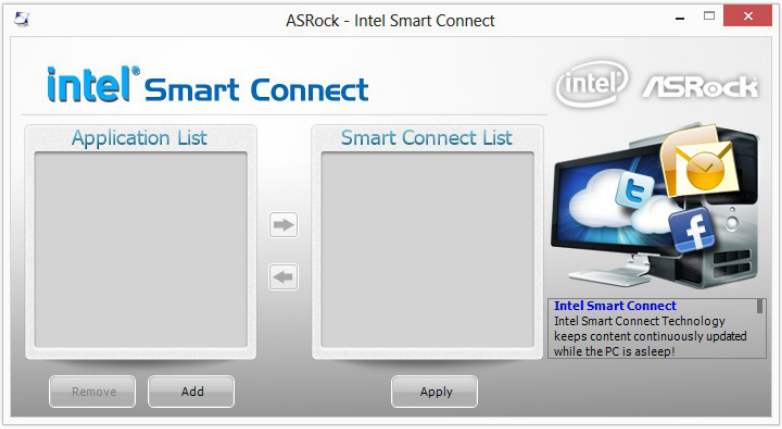
Step 1

Install **ASRock Smart Connect Utility**, which is located in the folder at the following path of the Support CD: \ **ASRock Utility > Smart Connect**.



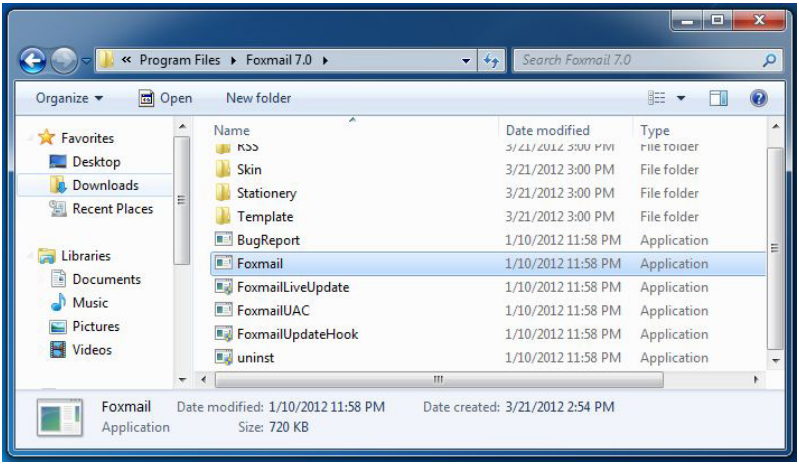
Step 2

Once installed, run ASRock Smart Connect from your desktop or go to Windows **Start -> All Programs -> ASRock Utility**.



Step 3

Click the **Add** button. Take Foxmail as an example, add Foxmail to the Application list.



Step 4

Select Foxmail from the **Application List**, then click the arrow pointing right to add this application to the **Smart Connect List**.

Step 5

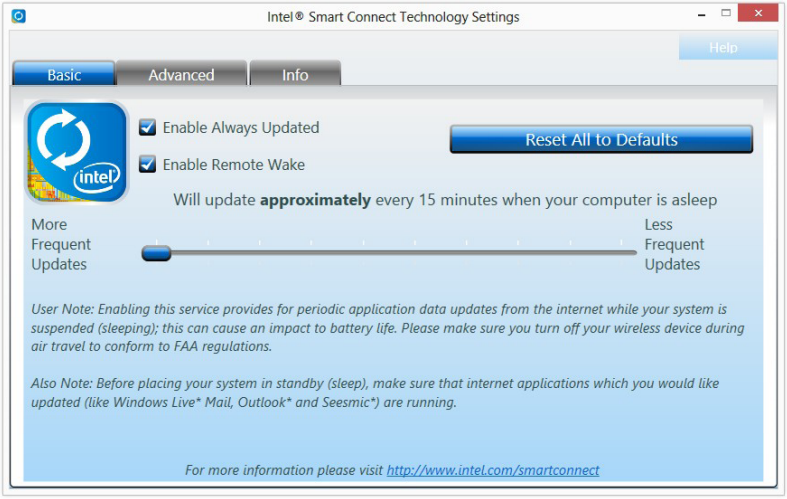
Click **Apply** to enable Smart Connect.

Step 6

Double-click the Intel® Smart Connect Technology Manager icon in the Windows system tray.

Step 7

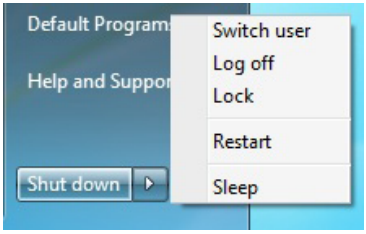
Drag the slider to configure how often the system will connect to the network to download updates. Shorter durations will provide more frequent updates, but may cause more power consumption.


Intel® Smart Connect Technology Settings
Help
Basic
Advanced
Info
Enable Always Updated
Enable Remote Wake
Reset All to Defaults
Will update approximately every 15 minutes when your computer is asleep
More Frequent Updates
Less Frequent Updates
User Note: Enabling this service provides for periodic application data updates from the internet while your system is suspended (sleeping); this can cause an impact to battery life. Please make sure you turn off your wireless device during air travel to conform to FAA regulations.
Also Note: Before placing your system in standby (sleep), make sure that internet applications which you would like updated (like Windows Live* Mail, Outlook* and Seesmic*) are running.
For more information please visit http://www.intel.com/smartconnect

Using Smart Connect

1. Keep the applications which you wish to connect to the internet and receive updates while the system is in sleep state running. Foxmail for instance, keep Foxmail running.

2. Click on Windows Start -> the arrow next to Shut down, and click on **Sleep**.



3. Windows system will enter sleep state.

4. The system will wake up from sleep state periodically, and then start to update Foxmail. The screen will not display anything so the computer can maintain minimum power usage. Afterwards, the system will automatically return to sleep state again.

5. Upon waking up the system, you will find the new mail that were sent to you during sleep state are already updated and ready to be read in Foxmail.

3.4 Intel® Remote Wake Technology

Intel® Remote Wake Technology allows you to use programs or services over the Internet to wake up your home computer from energy efficient sleep mode.

Before configuring this feature, verify the following.

- Remote Wake has been enabled in "Intel® Smart Connect Technology Manager".
- Make sure that the "PCI Device Power On" is enabled in UEFI SETUP UTILITY > Advanced > ACPI Configuration.

*Intel Remote Wake is supported on Win8 or Win8 64bit OS.

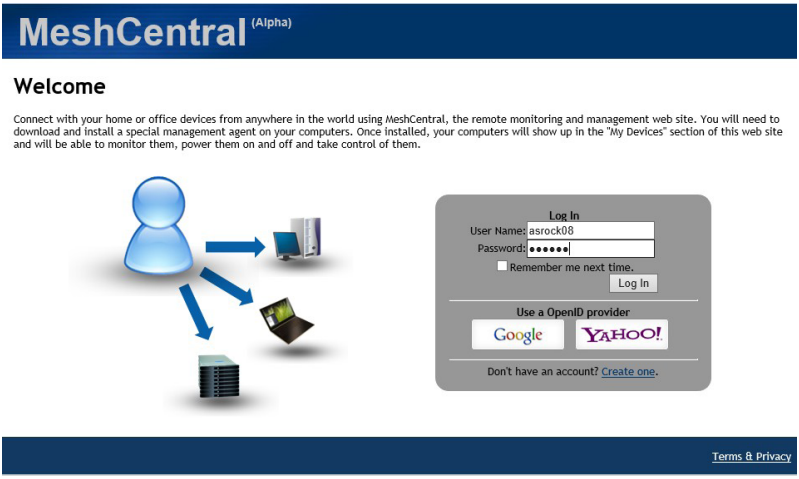
3.4.1 Configuring and Using MeshCentral

MeshCentral allows you to remotely wake up a PC from any network using a single web site. Just download and install the mesh agent on your computers and your computers will show up in the "My Devices" section of MeshCentral.com.

Creating a Mesh

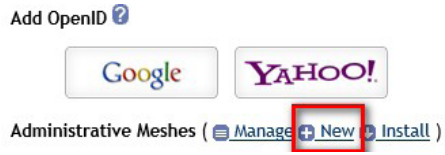
Step 1

Login to Meshcentral.com.
If you have not created a MeshCentral acount, go to MeshCentral.com and create a new account.


MeshCentral (Alpha)
Welcome
Connect with your home or office devices from anywhere in the world using MeshCentral, the remote monitoring and management web site. You will need to download and install a special management agent on your computers. Once installed, your computers will show up in the "My Devices" section of this web site and will be able to monitor them, power them on and off and take control of them.
Log In
User Name: asrock08
Password:
Remember me next time.
Log In
Use a OpenID provider
Google
YAHOO!
Don't have an account? Create one.
Terms & Privacy

Step 2

Click the "My Account" tab. Then click on "New" to create a new mesh.

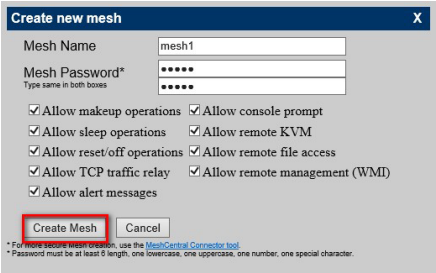


Step 3

A new mesh window will pop up. Enter a mesh name and password.

Step 4

Select all the checkboxes and click **Create Mesh**.



Downloading and Installing Mesh Agent

Step 1

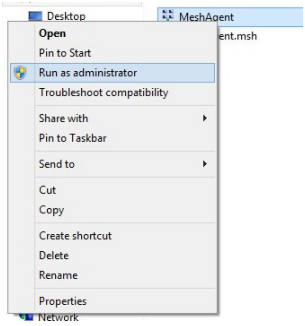
Click Install on the My Account page.

Step 2

Select the mesh and download both files. Make sure both files are in the same directory.

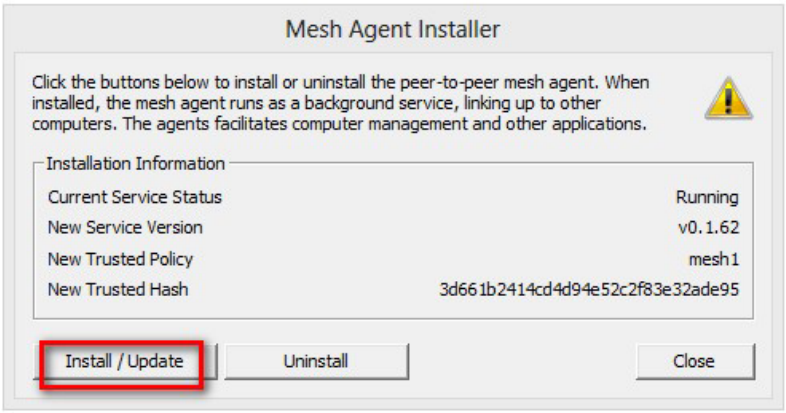
Step 3

Right-click on MeshAgent.exe and select **Run as administrator**.



Step 4

Click **Install / Update**.


Mesh Agent Installer
Click the buttons below to install or uninstall the peer-to-peer mesh agent. When installed, the mesh agent runs as a background service, linking up to other computers. The agents facilitates computer management and other applications.
Installation Information
Current Service Status
Running
New Service Version
v0.1.62
New Trusted Policy
mesh1
New Trusted Hash
3d661b2414cd4d94e52c2f83e32ade95
Install / Update
Uninstall
Close

Step 5

Wait a minute for the New Machine to appear in "My Device".

Step 6

Check whether "Intel Remote Wake" appeared or not.

Waking up Your PC using PC

Step 1

On the "My Devices" page, click on **Power Actions**.

Step 2

Click on **Wake** or **Sleep.**

Waking up Your PC Using Mobile Device

Before waking up your home computer using a mobile device, please log out of MeshCentral on other previously used computers or devices.

Step 1

Login to meshcentral.com/m.

Step 2

Select a Machine.

Step 3

Click on **Wake** or **Sleep.**

Tutorial Video

3.4.2 Configuring and Using Splashtop

Splashtop is a remote desktop access software that lets you remotely access your home computer from your mobile device.
Before configuring this feature, verify the following.

- MeshCentral has been properly configured.
  *Follow the instructions on "3.5.1 Configuring and Using MeshCentral " to create a mesh and install mesh agent.
- Remote Wake has been enabled in "Intel® Smart Connect Technology Manager".

Setup Guide

Step 1

Download and install the **Streamer** on your home computer, which is located in the folder at the following path of the Support CD: \ **ASRock Utility > Splashtop Streamer**. Then enter your Splashtop Account. If you have not created a Splashtop acount, create one.

Step 2

Download and install “Splashtop 2” on your mobile device and log into the app.

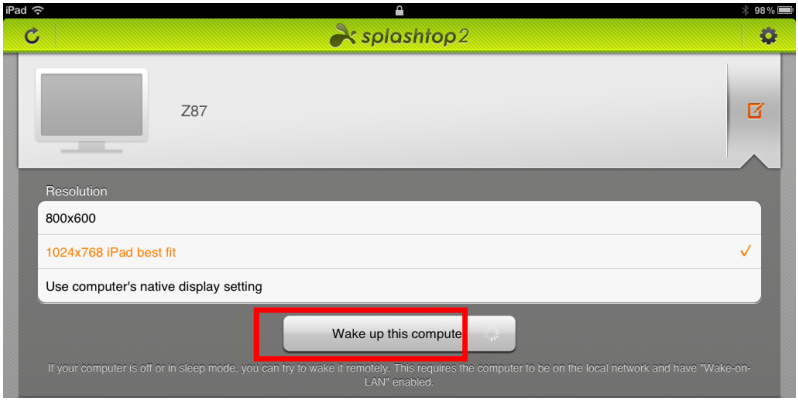
Using Remote Wakeup

Step 1

In "Splashtop 2”, tap the edit button next to an offline machine from the list.

Step 2

Tap "Wake up this computer".


iPad
98 %
splashtop 2
Z87
Resolution
800x600
1024x768 iPad best fit
Use computer's native display setting
Wake up this compute
If your computer is off or in sleep mode, you can try to wake it remotely. This requires the computer to be on the local network and have "Wake-on-LAN" enabled.

Using Remote Control

Step 1

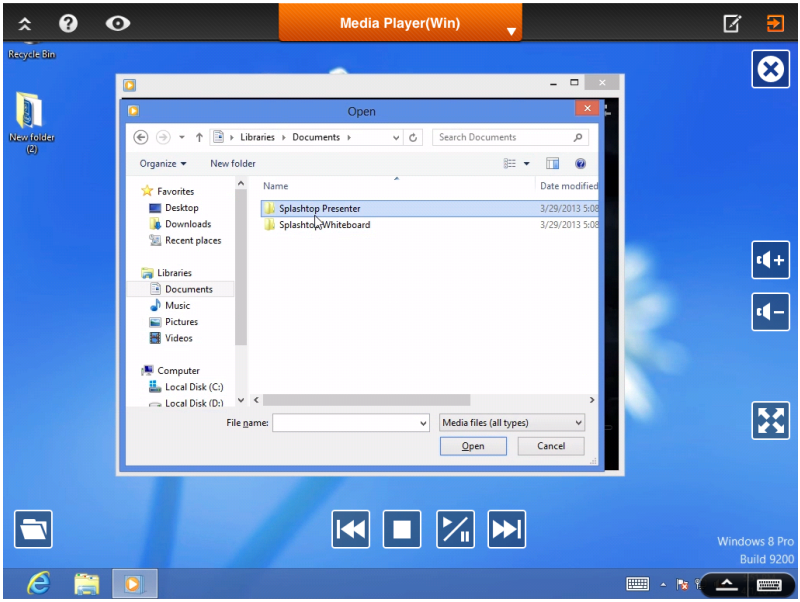
In "Splashtop 2", tap an online machine from the list to connect to your home computer.

Step 2

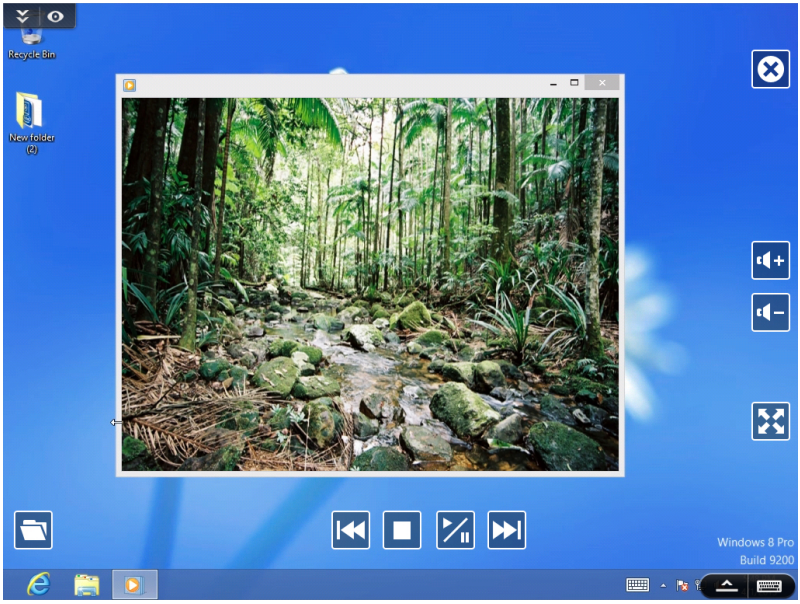
Start remotely accessing your home computer.

The functionality and price of the Splashtop APP and subscription fee is subject to change. Please check www.splashtop.com for for details.

Accessing Data



Playing Video



3.5 Start8

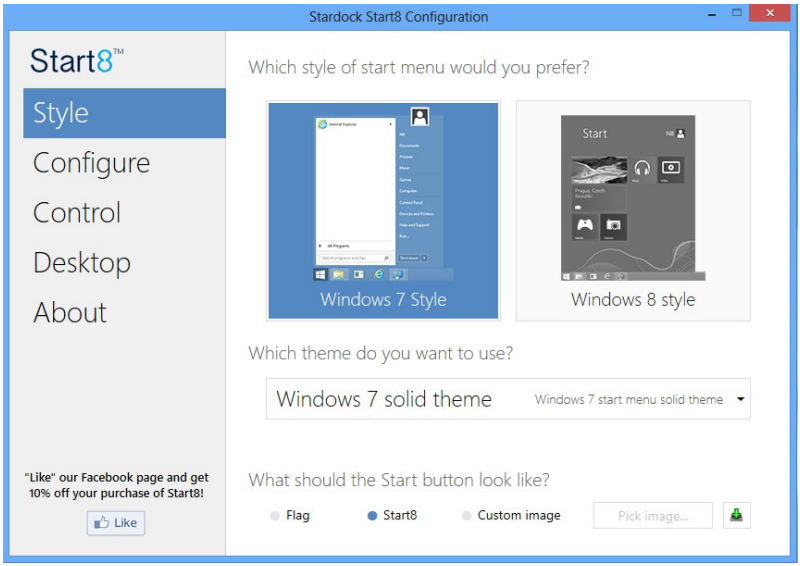
For those Windows 8 users who miss the Start Menu, Start8 is an ideal solution that brings back the familiar Start Menu along with added customizations for greater efficiency.

3.5.1 Installing Start8

Install **Start8**, which is located in the folder at the following path of the Support CD: **\ ASRock Utility > Start8**.

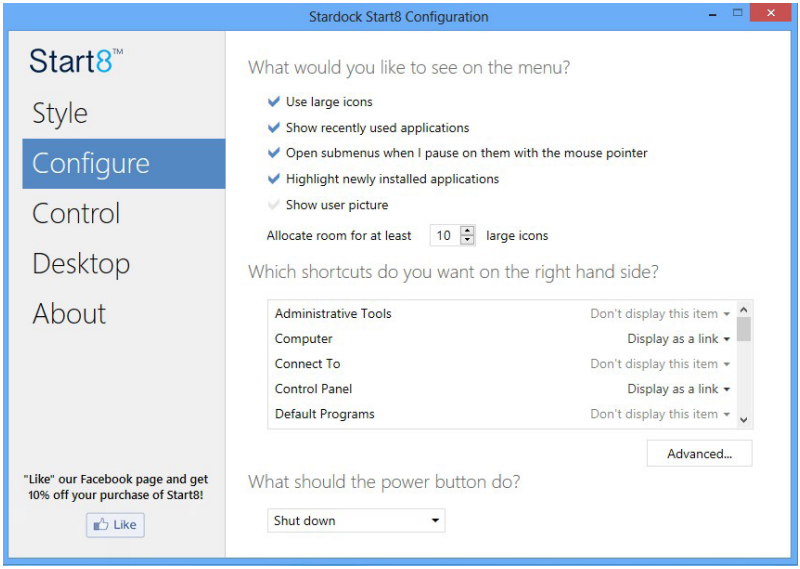
3.5.2 Configuring Start8

Style



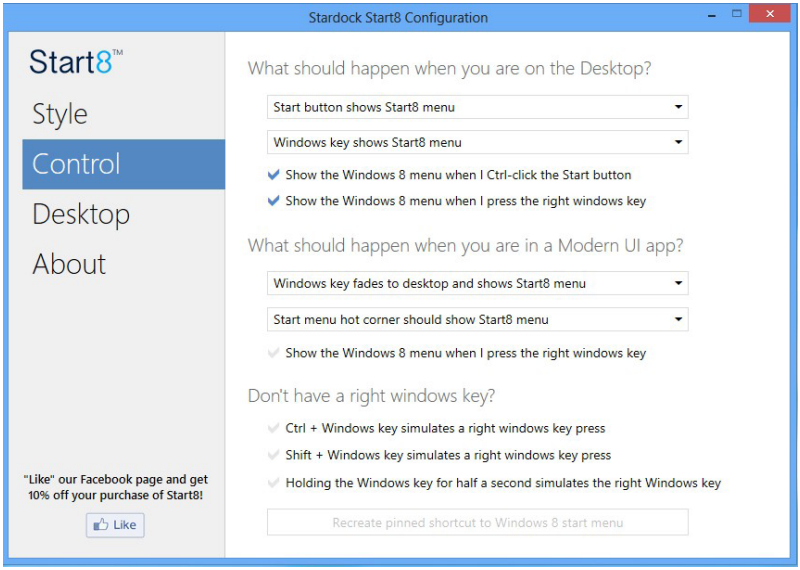
Select between the Windows 7 style and Windows 8 style Start Menu. Then select the theme of the Start Menu and customize the style of the Start icon.

Configure


Stardock Start8 Configuration
Start8™
Style
Configure
Control
Desktop
About
"Like" our Facebook page and get 10% off your purchase of Start8!
Like
What would you like to see on the menu?
Use large icons
Show recently used applications
Open submenus when I pause on them with the mouse pointer
Highlight newly installed applications
Show user picture
Allocate room for at least 10 large icons
Which shortcuts do you want on the right hand side?
Administrative Tools Don't display this item
Computer Display as a link
Connect To Don't display this item
Control Panel Display as a link
Default Programs Don't display this item
Advanced...
What should the power button do?
Shut down

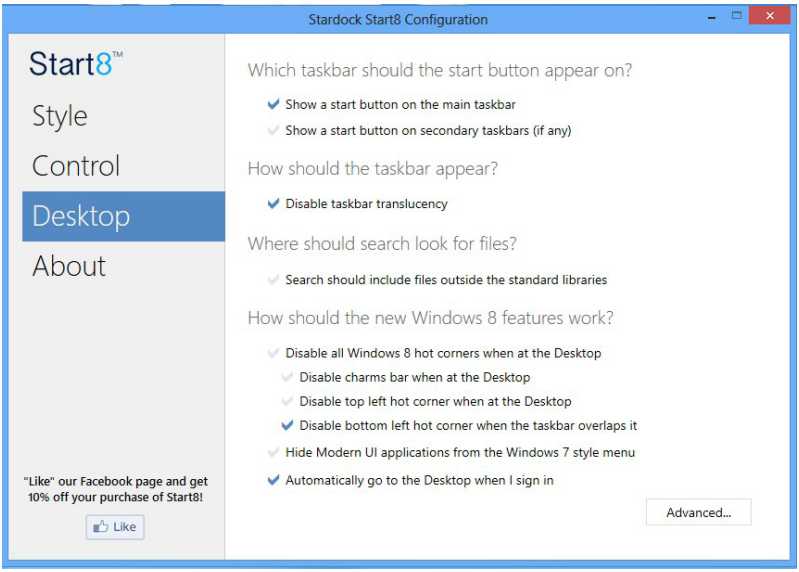
Configure provides configuration options, including icon sizes, which shortcuts you want Start Menu to display, quick access to recently used apps, the functionality of the power button, and more.

Control


Stardock Start8 Configuration
Start8™
Style
Control
Desktop
About
"Like" our Facebook page and get 10% off your purchase of Start8!
Like
What should happen when you are on the Desktop?
Start button shows Start8 menu
Windows key shows Start8 menu
Show the Windows 8 menu when I Ctrl-click the Start button
Show the Windows 8 menu when I press the right windows key
What should happen when you are in a Modern UI app?
Windows key fades to desktop and shows Start8 menu
Start menu hot corner should show Start8 menu
Show the Windows 8 menu when I press the right windows key
Don't have a right windows key?
Ctrl + Windows key simulates a right windows key press
Shift + Windows key simulates a right windows key press
Holding the Windows key for half a second simulates the right Windows key
Recreate pinned shortcut to Windows 8 start menu

Control lets you configure what a click on the start button or a press on the Windows key does.

Desktop


Stardock Start8 Configuration
Start8™
Style
Control
Desktop
About
"Like" our Facebook page and get 10% off your purchase of Start8!
Like
Which taskbar should the start button appear on?
Show a start button on the main taskbar
Show a start button on secondary taskbars (if any)
How should the taskbar appear?
Disable taskbar translucency
Where should search look for files?
Search should include files outside the standard libraries
How should the new Windows 8 features work?
Disable all Windows 8 hot corners when at the Desktop
Disable charms bar when at the Desktop
Disable top left hot corner when at the Desktop
Disable bottom left hot corner when the taskbar overlaps it
Hide Modern UI applications from the Windows 7 style menu
Automatically go to the Desktop when I sign in
Advanced...

Desktop allows you to disable the hot corners when you are working on the desktop. It also lets you choose whether or not the system boots directly into desktop mode and bypass the Metro user interface.

About

Displays information about Start8.

Chapter 4 UEFI SETUP UTILITY

4.1 Introduction

ASRock Interactive UEFI is a blend of system configuration tools, cool sound effects and stunning visuals. Not only will it make BIOS setup less difficult but also a lot more amusing. This section explains how to use the UEFI SETUP UTILITY to configure your system. You may run the UEFI SETUP UTILITY by pressing <F2> or <Del> right after you power on the computer, otherwise, the Power-On-Self-Test (POST) will continue with its test routines. If you wish to enter the UEFI SETUP UTILITY after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.

Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

4.1.1 UEFI Menu Bar

The top of the screen has a menu bar with the following selections:

Main	For setting system time/date information
OC Tweaker	For overclocking configurations
Advanced	For advanced system configurations
Tool	Useful tools
H/W Monitor	Displays current hardware status
Boot	For configuring boot settings and boot priority
Security	For security settings
Exit	Exit the current screen or the UEFI Setup Utility

4.1.2 Navigation Keys

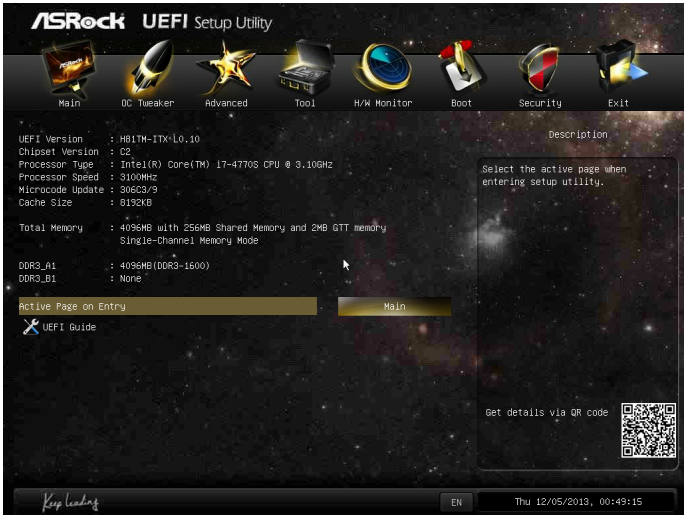
Use <←> key or <→> key to choose among the selections on the menu bar, and use < ↑ > key or < ↓ > key to move the cursor up or down to select items, then press <Enter> to get into the sub screen. You can also use the mouse to click your required item.

Please check the following table for the descriptions of each navigation key.

Navigation Key(s)	Description
+ / -	To change option for the selected items
<Tab>	Switch to next function
<PGUP>	Go to the previous page
<PGDN>	Go to the next page
<HOME>	Go to the top of the screen
<END>	Go to the bottom of the screen
<F1>	To display the General Help Screen
<F4>	Toggle sound on/off
<F7>	Discard changes and exit the SETUP UTILITY
<F9>	Load optimal default values for all the settings
<F10>	Save changes and exit the SETUP UTILITY
<F12>	Print screen
<ESC>	Jump to the Exit Screen or exit the current screen

4.2 Main Screen

When you enter the UEFI SETUP UTILITY, the Main screen will appear and display the system overview.



Active Page on Entry

Select the default page when entering the UEFI setup utility.

UEFI Guide

UEFI Guide is a quick tutorial for ASRock's UEFI setup Utility. You may abort the tutorial by pressing "esc".

4.3 OC Tweaker Screen

In the OC Tweaker screen, you can set up overclocking features.

Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

Load Optimized CPU OC Setting

You can use this option to load optimized CPU overclocking setting. Please note that overclocking may cause damage to your CPU and motherboard. It should be done at your own risk and expense. This option appears only when you adopt K-Series CPU.

Multi Core Enhancement

Improve the system's performance by forcing the CPU to perform the highest frequency on all CPU cores simultaneously. Disable to reduce power consumption.

CPU Configuration

CPU Ratio

The CPU speed is determined by the CPU Ratio multiplied with the BCLK. Increasing the CPU Ratio will increase the internal CPU clock speed without affecting the clock speed of other components.

CPU Cache Ratio

The CPU Internal Bus Speed Ratio. The maximum should be the same as the CPU Ratio.

CPU OC Fixed Mode

CPU OC fix mode allows you to keep the max CPU ratio as your setting without throttling. Please note that overclocking may cause damage to your CPU and motherboard. It should be done at your own risk and expense.

Intel SpeedStep Technology

Intel SpeedStep technology allows processors to switch between multiple frequencies and voltage points for better power saving and heat dissipation.

Intel Turbo Boost Technology

Intel Turbo Boost Technology enables the processor to run above its base operating frequency when the operating system requests the highest performance state.

Filter PLL Frequency

CPU BCLK Filter Frequency. Choose low for better overclocking capabilities.

Long Duration Power Limit

Configure Package Power Limit 1 in watts. When the limit is exceeded, the CPU ratio will be lowered after a period of time. A lower limit can protect the CPU and save power, while a higher limit may improve performance.

Long Duration Maintained

Configure the period of time until the CPU ratio is lowered when the Long Duration Power Limit is exceeded.

Short Duration Power Limit

Configure Package Power Limit 2 in watts. When the limit is exceeded, the CPU ratio will be lowered immediately. A lower limit can protect the CPU and save power, while a higher limit may improve performance.

Primary Plane Current Limit

Configure the current limit of the CPU under Turbo Mode in ampere. A lower limit can protect the CPU and save power, while a higher limit may improve performance.

GT Frequency

Configure the frequency of the integrated GPU.

GT Voltage Mode

Auto: For optimized settings.

Adaptive: Add voltage to the integrated GPU when the system is under heavy load.

Override: The voltage is fixed.

GT Adaptive Voltage

Configure the fixed voltage added to the integrated GPU.

GT Voltage Offset

Configure the voltage added to the integrated GPU when the system is under heavy load.

DRAM Timing Configuration

DRAM Frequency

If [Auto] is selected, the motherboard will detect the memory module(s) inserted and assign the appropriate frequency automatically.

DRAM Configuration

ASRock UEFI Setup Utility
Main
OC Tweaker
Advanced
Tool
H/W Monitor
Boot
Security
Exit
OC Tweaker\DRAM Configuration
CAS# Latency (tCL) 11 Auto
RAS# to CAS# Delay (tRCD) 11 Auto
Row Precharge Time (tRP) 11 Auto
RAS# Active Time (tRAS) 28 Auto
Command Rate (CR) 1N Auto
Write Recovery Time (tWR) 12 Auto
Refresh Cycle Time (tRFC) 128 Auto
RAS to RAS Delay (tRRD) 5 Auto
Write to Read Delay (tWTR) 6 Auto
Read to Precharge (tRTP) 6 Auto
Four Activate Window (tFAW) 24 Auto
CAS Write Latency (tCWL) 8 Auto
tREFI 6240 Auto
tCKE 4 Auto
tRDRD 4 Auto
Description
The time between sending a column address to the memory and the beginning of the data in response.
Min: 4
Max: 15
Get details via QR code
Keep leading
EN
Thu 12/05/2013, 00:50:11

CAS# Latency (tCL)

The time between sending a column address to the memory and the beginning of the data in response.

RAS# to CAS# Delay (tRCD)

The number of clock cycles required between the opening of a row of memory and accessing columns within it.

Row Precharge Time (tRP)

The number of clock cycles required between the issuing of the precharge command and opening the next row.

RAS# Active Time (tRAS)

The number of clock cycles required between a bank active command and issuing the precharge command.

Command Rate (CR)

The delay between when a memory chip is selected and when the first active command can be issued.

Write Recovery Time (tWR)

The amount of delay that must elapse after the completion of a valid write operation, before an active bank can be precharged.

Refresh Cycle Time (tRFC)

The number of clocks from a Refresh command until the first Activate command to the same rank.

RAS to RAS Delay (tRRD)

The number of clocks between two rows activated in different banks of the same rank.

Write to Read Delay (tWTR)

The number of clocks between the last valid write operation and the next read command to the same internal bank.

Read to Precharge (tRTP)

The number of clocks that are inserted between a read command to a row precharge command to the same rank.

Four Activate Window (tFAW)

The time window in which four activates are allowed the same rank.

CAS Write Latency (tCWL)

Configure CAS Write Latency.

tREFI

Configure refresh cycles at an average periodic interval.

tCKE

Configure the period of time the DDR3 initiates a minimum of one refresh command internally once it enters Self-Refresh mode.

tRDRD

Configure between module read to read delay.

tRDRDDR

Configure between module read to read delay from different ranks.

tRDRDDD

Use this to change DRAM tRWSR Auto/Manual settings. The default is [Auto].

tWRRD

Configure between module write to read delay.

tWRRDDR

Configure between module write to read delay from different ranks.

tWRRDDD

Use this to change DRAM tRRSR Auto/Manual settings. The default is [Auto].

Configure between module write to read delay from different DIMMs.

tWRWR

Configure between module write to write delay.

tWRWRDR

Configure between module write to write delay from different ranks.

tWRWRDD

Configure between module write to write delay from different DIMMs.

RTL (CHA)

Configure round trip latency for channel A.

RTL (CHB)

Configure round trip latency for channel B.

IO-L (CHA)

Configure IO latency for channel A.

IO-L (CHB)

Configure IO latency for channel B.

ODT WR (CHA)

Configure the memory on die termination resistors' WR for channel A.

ODT WR (CHB)

Configure the memory on die termination resistors' WR for channel B.

ODT NOM (CHA)

Use this to change ODT (CHA) Auto/Manual settings. The default is [Auto].

ODT NOM (CHB)

Use this to change ODT (CHB) Auto/Manual settings. The default is [Auto].

Command Tri State

Enable for DRAM power saving.

MRC Fast Boot

Enable Memory Fast Boot to skip DRAM memory training for booting faster.

DIMM Exit Mode

Select Slow Exit to reduce power consumption, or Fast Exit for better performance.

FIVR Configuration

FIVR Switch Frequency Signature

Select whether to boost or lower the FIVR Switch Frequency.

FIVR Switch Frequency Offset

Configure the percentage of frequency boost or deduction.

Vcore Override Voltage

Configure the voltage added to the Vcore when the system is under heavy load.

Vcore Voltage Additional Offset

Configure the dynamic Vcore voltage added to the Vcore.

CPU Cache Override Voltage

Add voltage to the CPU Cache when the system is under heavy load.

CPU Cache Voltage Offset

Configure the voltage for the CPU Cache. Setting the voltage higher may increase system stability when overclocking.

System Agent Voltage Offset

Configure the voltage for the System Agent. Setting the voltage higher may increase system stability when overclocking.

CPU Analog IO Voltage Offset

CPU I/O Analog Voltage.

CPU Digital IO Voltage Offset

CPU I/O Digital Voltage.

CPU Integrated VR Faults

Disable FIVR Faults to raise the threshold to trigger CPU over current protection and over voltage protection for better overclocking capabilities.

CPU Integrated VR Efficiency Mode

Enable FIVR Efficiency Management for power saving. Disable for better performance and overclocking capabilities.

Voltage Configuration

Power Saving Mode

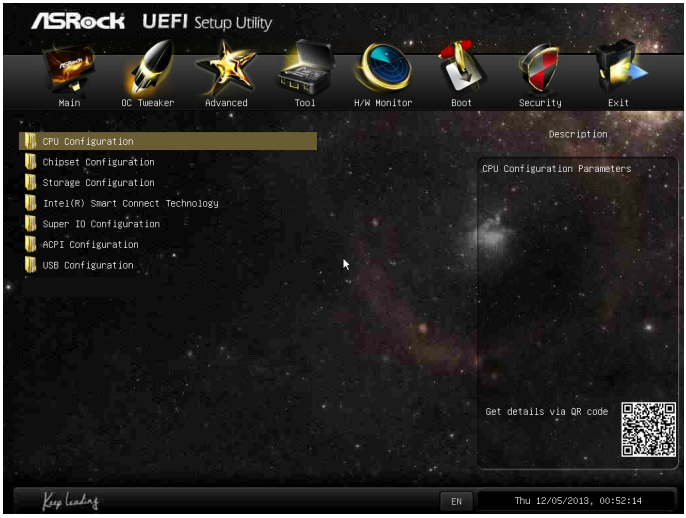
Enable Power Saving Mode to reduce power consumption.

DRAM Voltage

Use this to configure DRAM Voltage. The default value is [Auto].

4.4 Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, Chipset Configuration, Storage Configuration, Intel® Smart Connect Technology, Super IO Configuration, ACPI Configuration and USB Configuration.



Setting wrong values in this section may cause the system to malfunction.

4.4.1 CPU Configuration

Intel Hyper Threading Technology

Intel Hyper Threading Technology allows multiple threads to run on each core, so that the overall performance on threaded software is improved.

Active Processor Cores

Select the number of cores to enable in each processor package.

CPU C States Support

Enable CPU C States Support for power saving. It is recommended to keep C3, C6 and C7 all enabled for better power saving.

Enhanced Halt State (C1E)

Enable Enhanced Halt State (C1E) for lower power consumption.

CPU C3 State Support

Enable C3 sleep state for lower power consumption.

CPU C6 State Support

Enable C6 deep sleep state for lower power consumption.

CPU C7 State Support

Enable C7 deep sleep state for lower power consumption.

Package C State Support

Enable CPU, PCIe, Memory, Graphics C State Support for power saving.

CPU Thermal Throttling

Enable CPU internal thermal control mechanisms to keep the CPU from overheating.

No-Execute Memory Protection

Processors with No-Execution Memory Protection Technology may prevent certain classes of malicious buffer overflow attacks.

Intel Virtualization Technology

Intel Virtualization Technology allows a platform to run multiple operating systems and applications in independent partitions, so that one computer system can function as multiple virtual systems.

Hardware Prefetcher

Automatically prefetch data and code for the processor. Enable for better performance.

Adjacent Cache Line Prefetch

Automatically prefetch the subsequent cache line while retrieving the currently requested cache line. Enable for better performance.

4.4.2 Chipset Configuration

Primary Graphics Adapter

Select a primary VGA.

VT-d

Intel® Virtualization Technology for Directed I/O helps your virtual machine monitor better utilize hardware by improving application compatibility and reliability, and providing additional levels of manageability, security, isolation, and I/O performance.

PCIE1 Link Speed

Select the link speed for PCIE1.

Share Memory

Configure the size of memory that is allocated to the integrated graphics processor when the system boots up.

IGPU Multi-Monitor

Select disable to disable the integrated graphics when an external graphics card is installed. Select enable to keep the integrated graphics enabled at all times.

Render Standby

Power down the render unit when the GPU is idle for lower power consumption.

LVDS Configuration

This allows you to enable or disable the Onboard LVDS.

Panel Type Selection

Use this to select a panel type.

Primary IGFX Boot Display

Use this to select the video device which will be activated during POST.

Onboard HD Audio

Enable/disable onboard HD audio. Set to Auto to enable onboard HD audio and automatically disable it when a sound card is installed.

Front Panel

Enable/disable front panel HD audio.

External Panel

Select [Auto] or [Disabled] for the External Audio Panel.

Onboard HDMI HD Audio

Enable audio for the onboard digital outputs.

Onboard LAN

Enable or disable the onboard network interface controller.

Wireless

This allows you to enable or disable the Wireless function.

Radio Controller

This allows you to enable or disable the Radio Controller.

Deep Sleep

Configure deep sleep mode for power saving when the computer is shut down.

Restore on AC/Power Loss

Select the power state after a power failure. If [Power Off] is selected, the power will remain off when the power recovers. If [Power On] is selected, the system will start to boot up when the power recovers.

Good Night LED

By enabling Good Night LED, the Power/HDD LEDs will be switched off when the system is on. It will also automatically switch off the Power and Keyboard LEDs when the system enters into Standby/Hibernation mode.

4.4.3 Storage Configuration

SATA Controller(s)

Enable/disable the SATA controllers.

SATA Mode Selection

IDE: For better compatibility.

AHCI: Supports new features that improve performance.

AHCI (Advanced Host Controller Interface) supports NCQ and other new features that will improve SATA disk performance but IDE mode does not have these advantages.

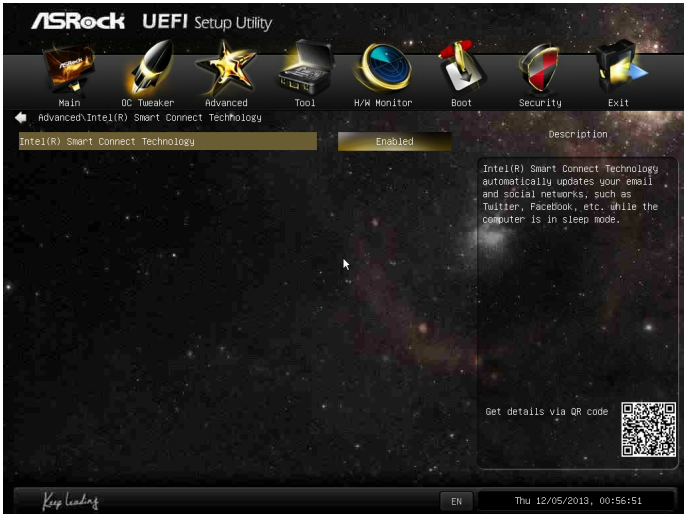
SATA Aggressive Link Power Management

SATA Aggressive Link Power Management allows SATA devices to enter a low power state during periods of inactivity to save power. It is only supported by AHCI mode.

Hard Disk S.M.A.R.T.

S.M.A.R.T stands for Self-Monitoring, Analysis, and Reporting Technology. It is a monitoring system for computer hard disk drives to detect and report on various indicators of reliability.

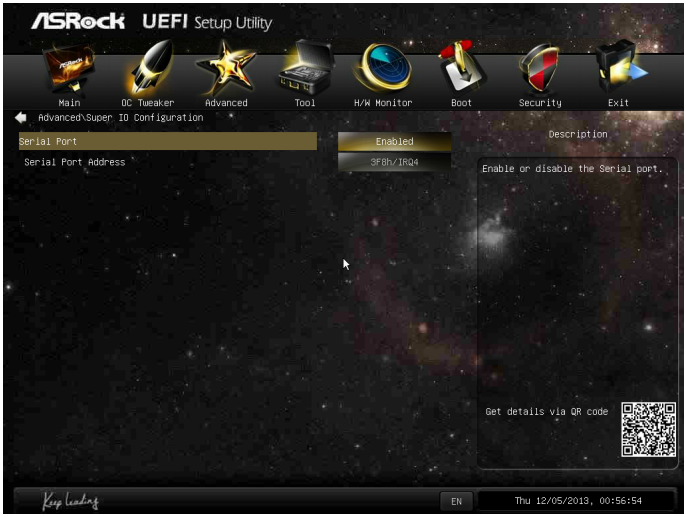
4.4.4 Intel® Smart Connect Technology



Intel® Smart Connect Technology

Intel® Smart Connect Technology automatically updates your email and social networks, such as Twitter, Facebook, etc. while the computer is in sleep mode.

4.4.5 Super IO Configuration



Serial Port

Enable or disable the Serial port.

Serial Port Address

Select the address of the Serial port.

4.4.6 ACPI Configuration

Suspend to RAM

Select disable for ACPI suspend type S1. It is recommended to select auto for ACPI S3 power saving.

Check Ready Bit

Enable to enter the operating system after S3 only when the hard disk is ready, this is recommended for better system stability.

ACPI HPET Table

Enable the High Precision Event Timer for better performance and to pass WHQL tests.

PCIE Devices Power On

Allow the system to be waked up by a PCIE device and enable wake on LAN.

Wake From Onboard LAN

Allow the system to be waked up by the Onboard Intel I217V LAN.

Ring-In Power On

Allow the system to be waked up by onboard COM port modem Ring-In signals.

RTC Alarm Power On

Allow the system to be waked up by the real time clock alarm. Set it to By OS to let it be handled by your operating system.

USB Keyboard/Remote Power On

Allow the system to be waked up by an USB keyboard or remote controller.

USB Mouse Power On

Allow the system to be waked up by an USB mouse.

4.4.7 USB Configuration

USB Controller

Enable or disable all the USB ports.

USB 3.0 Controller

Enable or disable all the USB 3.0 ports.

Legacy USB Support

Enable or disable Legacy OS Support for USB 2.0 devices. If you encounter USB compatibility issues it is recommended to disable legacy USB support. Select UEFI Setup Only to support USB devices under the UEFI setup and Windows/Linux operating systems only.

Legacy USB 3.0 Support

Enable or disable Legacy OS Support for USB 3.0 devices.

4.5 Tools

UEFI Tech Service

Contact ASRock Tech Service if you are having trouble with your PC. Please setup network configuration before using UEFI Tech Service.

Easy Driver Installer

For users that don't have an optical disk drive to install the drivers from our support CD, Easy Driver Installer is a handy tool in the UEFI that installs the LAN driver to your system via an USB storage device, then downloads and installs the other required drivers automatically.

Instant Flash

Save UEFI files in your USB storage device and run Instant Flash to update your UEFI.

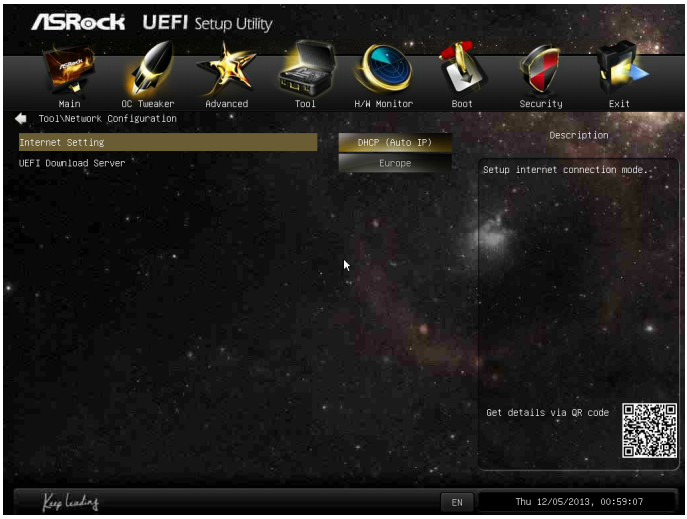
Internet Flash

ASRock Internet Flash downloads and updates the latest UEFI firmware version from our servers for you. Please setup network configuration before using Internet Flash.

*For BIOS backup and recovery purpose, it is recommended to plug in your USB pen drive before using this function.

Network Configuration

Use this to configure internet connection settings for Internet Flash.



Internet Setting

Enable or disable sound effects in the setup utility.

UEFI Download Server

Select a server to download the UEFI firmware.

Dehumidifier Function

If Dehumidifier Function is enabled, the computer will power on automatically to dehumidify the system after entering S4/S5 state.

Dehumidifier Period

Configure the period of time until the computer powers on and enables Dehumidifier after entering S4/S5 state.

Dehumidifier Duration

Configure the duration of the dehumidifying process before it returns to S4/S5 state.

Dehumidifier CPU Fan Setting

Configure the speed of the CPU fan while Dehumidifier is enabled. The higher the value, the faster the fan speed.

Max: 255

Min: 1

Save User Default

Type a profile name and press enter to save your settings as user default.

Load User Default

Load previously saved user defaults.

4.6 Hardware Health Event Monitoring Screen

This section allows you to monitor the status of the hardware on your system, including the parameters of the CPU temperature, motherboard temperature, fan speed and voltage.

CPU Fan 1 Setting

Select a fan mode for CPU Fans 1, or choose Customize to set 5 CPU temperatures and assign a respective fan speed for each temperature.

Chassis Fan 1 Setting

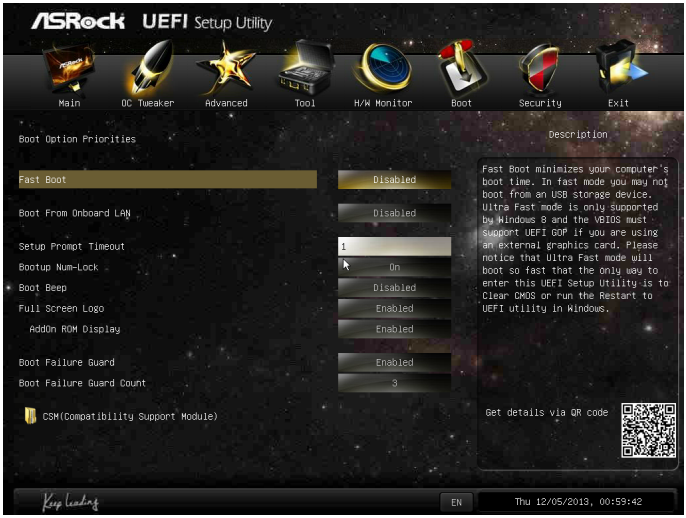
Select a fan mode for Chassis Fan 1, or choose Customize to set 5 CPU temperatures and assign a respective fan speed for each temperature.

Over Temperature Protection

When Over Temperature Protection is enabled, the system automatically shuts down when the motherboard is overheated.

4.7 Boot Screen

This section displays the available devices on your system for you to configure the boot settings and the boot priority.


ASRock UEFI Setup Utility
Main
OC Tweaker
Advanced
Tool
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Fast Boot
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Full Screen Logo
AddOn ROM Display
Boot Failure Guard
Boot Failure Guard Count
CSM(Compatibility Support Module)
Disabled
Disabled
1
On
Disabled
Enabled
Enabled
Enabled
3
Description
Fast Boot minimizes your computer's boot time. In fast mode you may not boot from an USB storage device. Ultra Fast mode is only supported by Windows 8 and the VBIOS must support UEFI GOP if you are using an external graphics card. Please notice that Ultra Fast mode will boot so fast that the only way to enter this UEFI Setup Utility is to Clear CMOS or run the Restart to UEFI utility in Windows.
Get details via QR code
Keep Leading
EN
Thu 12/05/2013, 00:59:42

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Boot From Onboard LAN

Allow the system to be waked up by the onboard LAN.

Setup Prompt Timeout

Configure the number of seconds to wait for the setup hot key.

Bootup Num-Lock

Select whether Num Lock should be turned on or off when the system boots up.

Boot Beep

Select whether the Boot Beep should be turned on or off when the system boots up. Please note that a buzzer is needed.

Full Screen Logo

Enable to display the boot logo or disable to show normal POST messages.

AddOn ROM Display

Enable AddOn ROM Display to see the AddOn ROM messages or configure the AddOn ROM if you've enabled Full Screen Logo. Disable for faster boot speed.

Boot Failure Guard

If the computer fails to boot for a number of times the system automatically restores the default settings.

Boot Failure Guard Count

Configure the number of attempts to boot until the system automatically restores the default settings.

CSM (Compatibility Support Module)

CSM

Enable to launch the Compatibility Support Module. Please do not disable unless you're running a WHCK test. If you are using Windows 8 64-bit and all of your devices support UEFI, you may also disable CSM for faster boot speed.

Launch PXE OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Do not launch?

Launch Storage OpROM Policy

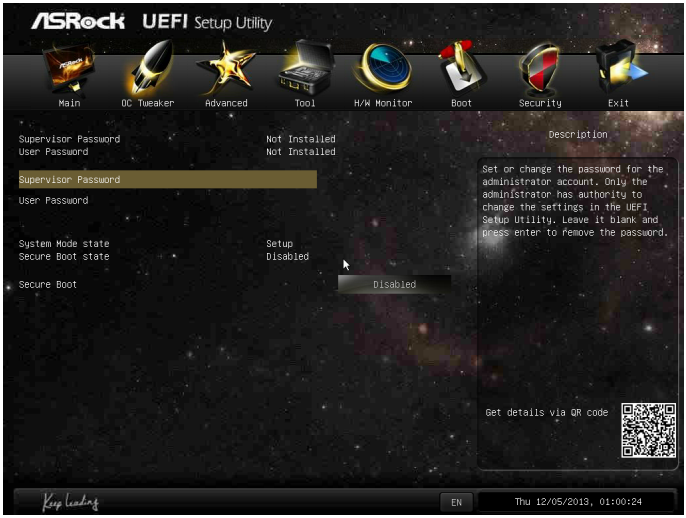
Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Do not launch?

Launch Video OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Do not launch?

4.8 Security Screen

In this section you may set or change the supervisor/user password for the system. You may also clear the user password.



Supervisor Password

Set or change the password for the administrator account. Only the administrator has authority to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

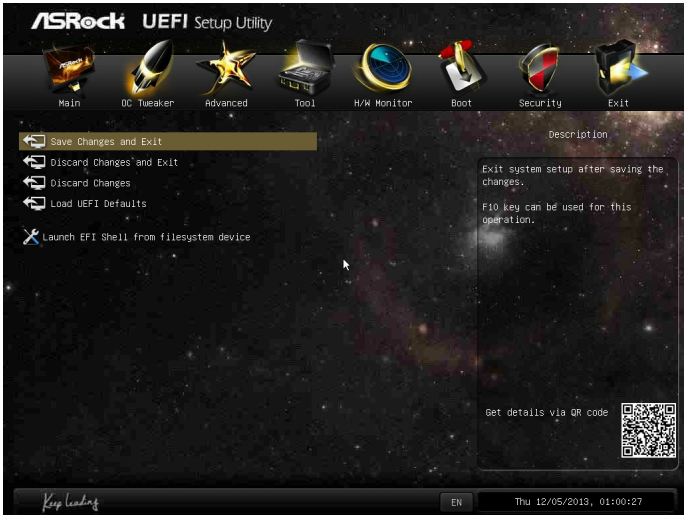
User Password

Set or change the password for the user account. Users are unable to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

Secure Boot

Enable to support Windows 8 Secure Boot.

4.9 Exit Screen



Save Changes and Exit

When you select this option the following message, "Save configuration changes and exit setup?" will pop out. Select [OK] to save changes and exit the UEFI SETUP UTILITY.

Discard Changes and Exit

When you select this option the following message, "Discard changes and exit setup?" will pop out. Select [OK] to exit the UEFI SETUP UTILITY without saving any changes.

Discard Changes

When you select this option the following message, "Discard changes?" will pop out. Select [OK] to discard all changes.

Load UEFI Defaults

Load UEFI default values for all options. The F9 key can be used for this operation.

Launch EFI Shell from filesystem device

Copy shellx64.efi to the root directory to launch EFI Shell.

Contact Information

If you need to contact ASRock or want to know more about ASRock, you're welcome to visit ASRock's website at http://www.asrock.com; or you may contact your dealer for further information. For technical questions, please submit a support request form at http://www.asrock.com/support/tsd.asp

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